

# Solar systems provide tax, energy savings

How can I stay warm?

That question was asked millions of years ago by man, and from that question came the use of fire for the purposes of heat. Today, while man knows how to stay warm, he now asks the question of, "How do I do it with

less expense?"

Many people ask this question, and some may even utter non-repeatable words when the monthly bill comes, but there are methods for lowering fuel consumption, and fuel costs. The solutions are here, but not everyone has yet begun to use them. However, there are several residents in the area who have begun to utilize the abundant, and free, energies of the sun.

Dr. Nelson Duncan, Roosevelt, and Lindon "Mutt" Dye, Neola, are both using solar heating devices in their homes. Dr. Duncan's process is a "greenhouse" which collects and stores the heat for use in his home. The system used by Lindon Dye is that of heating water for use in his house by passing water through the solar collectors.

The structure built by Dr. Duncan is fairly simple but, and although not completed, very effective.

The greenhouse was built by Dr. Duncan on his home's southern exposure. The construction of the heat-collecting system includes the digging of a hole adjacent to the existing foundation. Over this hole a glass structure is built using thermopane glass. The area under the glass is then filled with cobble-rock to the level of the floor. Dr. Duncan said he will then spread a layer of fine gravel over the rock.

Included within the rock will be some PVC piping which will be connected to a reversible fan. During the day the fan will pull the hot air through the rock where it will be stored within the rocks. Then, during

the evening, when heat is needed, the fan will be reversed and will pull heat from the rocks and put it into the house through a venting system.

"One of the the main reasons I purchased the home was because of the possibilities it offered for utilization of solar heating," said Dr. Duncan. The doctor said he became interested in the solar construction quite by accident.

He said he was visiting a friend's cabin, and they began to discuss how much heat could be produced in the area of the cabin's screen porch if it were all glass. Dr. Duncan said his friend had some magazines explaining some solar heating systems, and one thing led to another.

The construction on the project began July 7, and Dr. Duncan said he closed in the building the end of October. Even though the project is not yet completed, Dr. Duncan already expresses pleasure with the results.

The only cobble rock in place is that which was removed during excavation. Dr. Duncan said the temperature inside the greenhouse reaches about 100 degrees each day. He said even on the coldest morning the temperature inside the greenhouse had only dropped to 38 degrees.

As the furnace turned on at 8:10 a.m., Dr. Duncan turned and said that would probably be the last time the furnace came on until about 10 that evening. Dr. Duncan stressed the greenhouse is not yet completed, and said the structure should work much better when he places the remainder of the cobble rock. One must

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remember, however, that the sun will also shine all summer.

"This summer I will place some louvers over the windows to reduce the sun's rays penetrating the rock," said Duncan. He said he is also making some insulated shutters that will be closed during the nocturnal hours to keep the heat in. Dr. Duncan estimates his investment to be between \$4,200 and \$4,500. The system built in Roosevelt by Dr. Duncan is far from being the only type of system for such solar collection.

The system in use in Neola by Mutt Dye is for the heating of water for use in the home. Dye has three collectors located on his roof, and as the sun moves across the sky a tracking unit keeps the panels pointed at the sun.

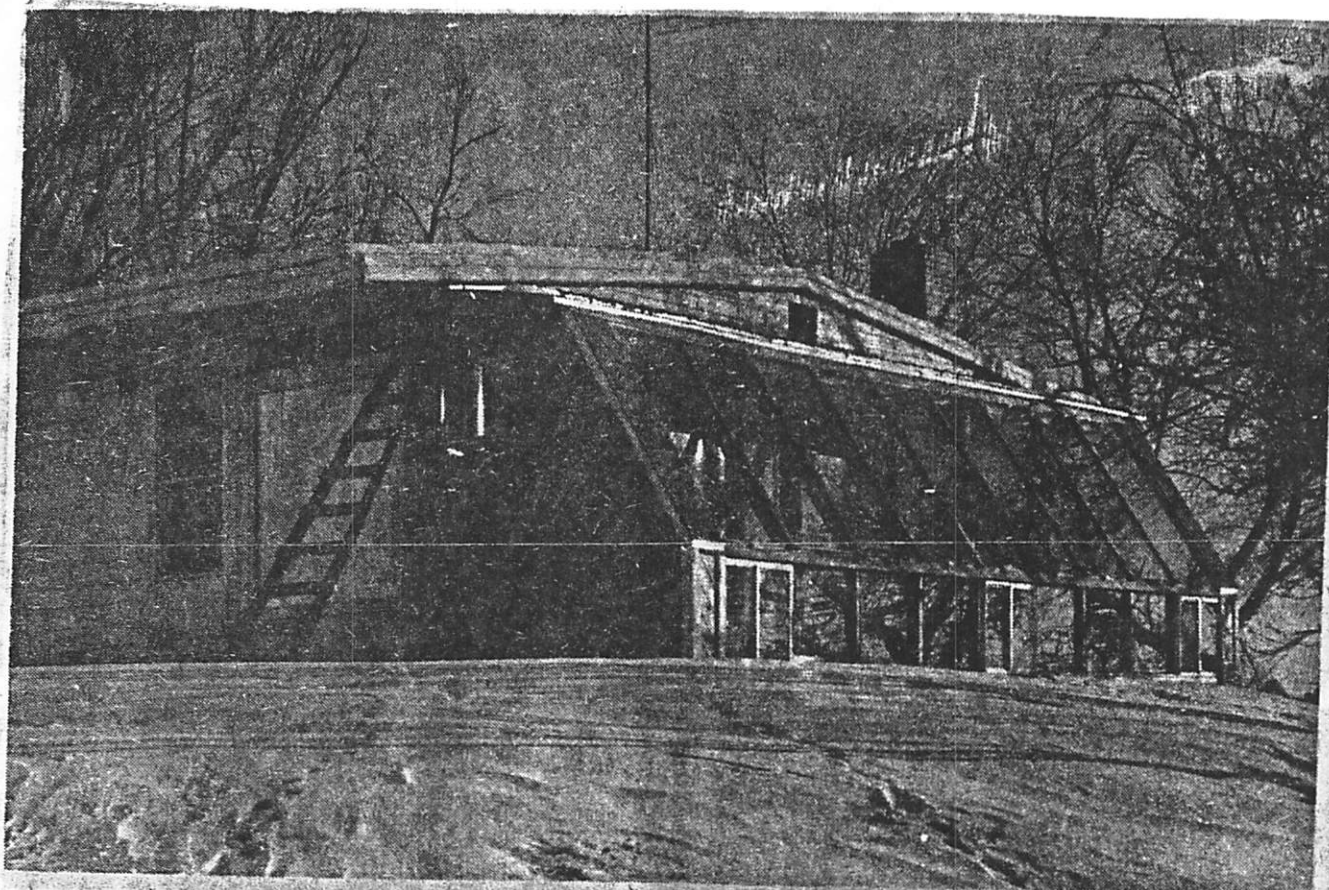
"I just heard the system advertised and became interested in it," said Mutt. He said last summer he was able to shut his gas water heater off and let the solar system heat the water.

The water heating system employed at the Dye home in Neola uses two tanks. The first tank, called the pre-heat tank, is where the well water enters the system. According to Mutt, water is then taken from the tank to the solar collectors where it is heated eight degrees. It then returns to the tank and more water is taken to the solar collectors. Mr. Dye said the entire tank is heated by increasing the water by eight degree intervals.

After the water in the 65-gallon pre-heat tank is heated to the maximum level, it then flows into the 45-gallon gas water heater to be heated to the desired level. Mutt said before the solar system was added to his home, the water heater would run

for about 10 to 15 minutes to heat the water after the tank was drained. He said with the pre-heat tank, the gas water heater now runs only between two and five minutes because the water entering the gas tank is about 90 degrees. One question that everyone asks is "How long will it take to recover the investment?"

Mutt said the engineers told him if it cost an individual \$10 each month to heat water at the present costs for energy, within five years the cost of the system would be recovered. Mutt emphasized this estimate was assuming costs for energy remain the same. He also pointed out the costs of running the pump is minimal. He said the company connected the pump used to pump water to the collectors and ran it for 30 days. The cost of electricity to run the pump was 30 cents. And while Mutt is heating only water in the system presently, he said it could be expanded to heat his entire home.



**GREENHOUSE**—This solar greenhouse has been added to the home of Dr. Nelson Duncan, Roosevelt, for purposes of providing heat. According to Dr. Duncan, the structure has been built at a cost of bet-

ween \$4,200 and \$4,500 and persently keeps the home warm during the day and until and 10 p.m. He said, when finished, the cobble rock base will hold heat much more efficiently.

By installing hot water baseboard heaters and additional panels, Mr. Dye could heat water by using panels that could then be run through the baseboard heaters. Presently, the system in use by Dye has cost him about \$2,500. "I am becoming more and more sold on the system each day," said Dye. While both Mr. Dye and Dr. Duncan are concerned about the energy savings these solar units provide, the tax benefits are also important.

Presently, any home installing some type of solar collection device, whether for home heating such as Dr. Duncan's, or for heating water, such as Mr. Dye's, will receive a 40 percent discount on their federal taxes and a 10 percent discount on state income taxes.



**WATER HEATERS?**—These solar collectors are located on the roof of the Mutt Dye home in Neola. According to Mutt, the collectors are filled with water and heat that water eight degrees before returning to the tank. This process continues until the entire content of the tank is heated to approximately 90 degrees. He said the water then flows into his gas heater for the final heating. Mutt said the system should return his investment within 5 years.